



**DEPARTMENT OF PESTICIDE REGULATION  
PESTICIDE REGISTRATION AND EVALUATION COMMITTEE  
Meeting Minutes – November 9, 2010**

**Committee Members/Alternates in Attendance:**

Syed Ali, State Water Resources Control Board  
Lynn Baker, Air Resources Board (ARB)  
Bill Douglas, Structural Pest Control Board  
David Luscher, Department of Food and Agriculture  
Stella McMillin, Department of Fish and Game (DFG)  
Ann Prichard, Department of Pesticide Regulation (DPR)  
Rebecca Sisco, University of California, IR-4 Program  
David Ting, Office of Environmental Health Assessment (OEHHA)  
Gabrielle Windgasse, Department of Toxic Substances Control (DTSC)  
Elena Yates, CalRecycle

**Visitors in Attendance:**

Denise Alder, DPR  
Brian Bret, Dow AgroSciences LLC.  
Henry Buckwalter, Western Plant Health Association  
Angela Csondes, ARB  
Billy Gaither, Pest Controllers of California  
Parakrama Gurusinghe, DPR  
Anne Katten, California Legal Rural Assistance Foundation  
Artie Lawyer, Technology Sciences Group  
Eileen Mahoney, DPR  
David Mallory, ARB  
Jessica Mullane, DPR  
Eric Paulsen, Clark Pest Control  
Neena Sahasrabudhe, DTSC  
Randy Segawa, DPR  
Jay Schrieder, DPR  
Darren Van Steenwyk, Clark Pest Control / Pest Controllers of California  
Edgar Vidrio, DPR

**1. Introductions and Committee Business – Ann Prichard, Acting Chairperson, DPR**

- a. About 15 people attended the meeting.
- b. No corrections to the minutes of the previous meeting, held on September 16, 2010, were identified.



## **2. Nanotechnology – Stan Phillippe, DTSC**

The Department of Toxic Substances Control (DTSC) became interested in nanomaterials a few years ago as part of the emerging chemicals issues from the Green Chemistry Initiative. Part of the Green Chemistry fundamentals is to fill various data gaps, safety gaps, and technology gaps. A DTSC team was formed with backgrounds in chemical engineering and other specialties such as toxicology and environmental science. Nanotechnology research has been underway for approximately four years now. Mr. Phillippe's talk described where DTSC is at with respect to their nano-initiative, including the legal basis for requiring specific data and why DTSC is focusing on this emerging industry.

Nanoparticles are used to create new structures and products that behave differently. Nanoparticles exist in nature, but our ability to manipulate them is a new field of study. Food storage containers is one example of nanotechnology taking shape as an emerging industry. DTSC hopes to get out ahead of some of the unknown issues, to stay ahead of potential problems, and to prevent future billion dollar superfund sites. The National Science Foundation estimates that the worldwide market for nanotechnology products will reach \$1 trillion by the year 2015.

A nanoparticle is approximately 1/80,000 the diameter of a human hair. Nanoparticles are not to be confused with naturally occurring ultrafine nanomaterials. Right now, there is considerable international discussion regarding the definition of nanomaterials. Some people use a range of size for nanometers to equal one nanometer to one hundred nanometers. There are also manufactured nanomaterials that start with the smallest dimension of a hundred nanometers and higher. DTSC is not convinced that 100 nanometers is a hard upper limit for the size of nanomaterials.

"Nano products, publications and patents are increasing at an exponential rate," stated one particular article entitled, "Exposure Assessment: Recommendations for Nanotechnology-Based Pesticides" published in the International Journal of Occupational and Environmental Health, October/December 2010. This particular article highlights important recommendations related to exposure assessment data needs for nanomaterials including: (1) disclosures of nanoparticle characteristics in product formulations; (2) additional uncertainty factors for nano-based pesticides (NBPs) with inadequate data; (3) route-specific approaches for assessing exposure; (4) testing with the commercial form of NBPs; (5) initiation of a health surveillance program; and (6) development of educational programs. The single largest category of nano-enabled products are the nanosilvers. Some products utilizing this include antimicrobial athletic wear, draperies, and hospital textiles. Nanosilver is not the only antimicrobial however, carbon nanotubes are also being used as an antimicrobial as well as silver sulfide nanoparticles in treated socks. One of the concerns raised in nanosilver enabled apparel is that the nanosilver does not stay on the apparel, but is

washed into wastewater streams and treatment facilities that process water through the laundry process.

Why are nanomaterials potentially more dangerous? Large surface area means more molecules on the surface. If you are looking at one centimeter cube, your total surface area is six centimeters; one millimeter cube, the total surface area is 60 centimeters cube. In one nanometer cube, the total surface area is 60 million centimeters cube and has a more reactive surface area with nanomaterials. Why are nanoparticles different? Their physical and chemical properties can change with their dimensions. They are often mixtures, with surfaces that differ from the bulk size counterparts. They can change in the environment through oxidation, agglomeration, fragmentation, solubility, etc. They can be functionalized in novel ways for specific applications.

The U.S. Environmental Protection Agency (U.S. EPA) is looking into nanosilver pesticides. There are many environmental points of entry for nanomaterials to get to consumers or the environment through wastewater, air and other means (loading, unloading, spills, etc.) There are analytical challenges for determining these constituents in media (sediment, wastewater, soil, air, etc.) Conventional wet chemistry analytical approaches and optical microscopy is not useful. There is a need for high resolution electron microscopy (atomic force microscope, scanning electron microscope, transmission electron microscopy, and scanning transmission electron microscopy.) There are also challenges to source identification.

The goals of the California Nanomaterials Initiative at DTSC include: (1) getting more information into the marketplace; (2) establish what is known and determine the data gaps; (3) create strategic partnerships with fellow state agencies such as the Department of Pesticide Regulation (DPR), Department of Public Health, and academia such as the University of California (UC) and other academic institutions to fill data gaps without duplicating efforts; (4) create strategic, coordinated and transparent partnership with the Federal Government; and (5) create market dominant products through trust.

In 2006, Assembly Member Wilma Chan sponsored Assembly Bill 289 (AB289) in the Health and Safety Code, Chapter 699, Section 57018 to 57020, which states, “it should be the responsibility of those who manufacture or import a chemical to provide relevant information on the fate and transport of that chemical into the environment.” In this law, “manufacturer” means a person who produces a chemical in this state or who imports a chemical into this state for sale in this state. “Chemical” has the same meaning as a chemical substance, as defined in Section 2602 of Title 15 of the United States Code. AB289 is a law that may be used by other Boards and Departments within Cal/EPA, except for DPR as they have their own authority to call in data/information.

The type of information AB289 requires may include, but is not limited to, any of the following: (1) an analytical test method for that chemical, or for metabolites and degradation products for that chemical that are biologically relevant in the matrix specified by the state agency; (2) the octanol-water partition coefficient and bioconcentration factor for humans for that chemical; and (3) other relevant information on the fate and transport of that chemical in the environment.

DTSC is utilizing AB289 to fill data gaps starting with the carbon nanotube industry due to the wide application of carbon nanotubes in products such as car parts, air plane parts, bicycle parts, sports equipment, and touch screens on the cell phones. The law spells out how to proceed with data generation:

- Identify California manufacturers and information needs for each chemical;
- Search state, federal and intergovernmental databases;
- Build a bibliographic database of the information gathered;
- Identify information needs for each chemical;
- Consult with external experts on information needs (universities, industry associations and others);
- Consult with manufacturers;
- Post the information request on the DTSC and Cal/EPA Web sites;
- Make formal request;
- Collaborate with manufacturers to identify additional information needed;
- Manufacturers have up to one year to provide the requested information;
- Protect trade secret claims;
- Organize information as it is received. (The first data call in was in 2009 and ended this year);
- Evaluate/Request additional information, if necessary;
- Share the information.

Round One: Example call-in questions for carbon nanotubes (2009 – 2010) -  
Detection and Measurement: What sampling, detection and measurement methods are you using to monitor the presence of your chemical in the workplace and the environment?

Environmental Fate and Transport: What is your knowledge about the current and projected presence of your chemical in the environment that results from manufacturing, distribution, use, and end-of-life disposal?

Public Health & Environmental Impacts: What is your knowledge about the safety of your chemical in terms of occupational safety, public health and the environment?

Occupational Safety: What methods are you using to protect workers in the research, development and manufacturing environment?

DTSC contracted with the UC Los Angeles to not only review the responses from the manufacturers, but to also evaluate DTSC's first round of implementation of AB289.

Round Two: Nano Metal Oxides and Quantum Dots

These include nano silver, nano zero valent iron, nano titanium dioxide, nano zinc oxide, nano cerium oxide, and quantum dots. DTSC will be focusing their initial questions on analytical test methods for the respective nanomaterial chemical, its metabolites and breakdown products, in various environmental matrices – air, water, soil.

DTSC/DPR Memorandum of Understanding (MOU)

The MOU for nanosilver was signed by the Directors in May of 2010. It allows DTSC to review pesticide registration documents and look for potential nanosilver manufacturers and importers for further communications. It allows DTSC to assess the uses and impacts of those pesticides and maintain the confidentiality of the shared information. There are human health and environmental concerns with nano silver. Some of the published concerns include: (1) neurotoxin; (2) inhibits DNA synthesis and degrades protein function; and (3) possible human disease related to inhalation and/or ingestion.

**3. VOC Emissions and Consumer Products – David Mallory, ARB**

The Air resources Board (ARB) sets standards for the volatile organic compound (VOC) content of different categories of consumer products. ARB regulates VOCs because they contribute to the formation of ground-level ozone, which is hazardous to human health.

Consumer products are defined in State law as “chemically formulated products that are used by household and institutional consumers, including personal care, automotive care, disinfectants, sanitizers and home, lawn and garden products.”

Because ARB must evaluate the feasibility of VOC limits for each individual product category to reach our reductions goals, they have set limits for over 100 product categories. About 10 of these are pesticide product categories.

ARB does not regulate all uses of pesticides; most uses are regulated by DPR. ARB primarily regulates products for sale at retail outlets that are intended for home or institutional use. ARB does not regulate restricted use pesticides or those that are for agricultural use only, nor do they regulate pesticides applied by pest control operators, even if they apply general use pesticides.

A grey area can exist between ARB and DPR jurisdiction. One example is a product that is labeled for both home use and agricultural use. The departments are aware of the potential

for overlap, and work closely with one another to avoid double counting of products in their respective inventories.

Despite the limited scope of ARB's authority over pesticides, ARB does regulate several types of pesticide products. The VOC limits in weight percent for the regulated category of products are:

- Crawling Bug            20 % (Nonaerosol)  
                                 15 % (Aerosol)
- Flying Bug              35 % (Nonaerosol)  
                                 25 % (Aerosol), 20 % (2014)
- Flea and Tick            25 % (All forms)
- Wasp or Hornet        40% (Aerosol), 10 % (2014)
- Lawn or Garden        3 % (Nonaerosol)  
                                 20 % (Aerosol)
- Insect Foggers        45 % (All forms)
- Non-Selective         3 % (Nonaerosol)
- Terrestrial Herbicide
- Insect Repellent       65 % (Aerosol)
- Disinfectants &       70 % (Aerosol)  
  Sanitizers              1 % (Nonaerosol)

ARB arrives at VOC limits based primarily on data they collect from their mandatory surveys. While the term “survey” implies a voluntary aspect, ARB's survey is required by California state law, so it is really more analogous to DPR's mandatory data call-ins. In the survey, ARB asks for the formulation of the finished product and number of units sold in California in the given sales year. ARB holds all individual company information in the strictest confidence. The only information released to the public is broad, aggregate data; therefore, no single company's information can be isolated.

ARB compiles the survey information and then uses it along with trade and industry information to determine the lowest possible VOC content for a group of similar products, taking into account the commercial and technological feasibility of the lower-VOC products. ARB holds a series of public workgroup meetings with stakeholders, in which draft proposals are presented and feedback from affected parties are encouraged.

State law has special provisions for “health benefit products;” therefore, ARB staff take care when regulating those types of products. Examples of health benefit products include over-the-counter drugs or disinfectants. The code also prohibits ARB from eliminating a product form such as liquid, aerosol, etc.

ARB's website offers the full text of all of their regulations, explains the regulatory process they follow, and announces program updates. The URL listed here is for the Consumer Products home page (<<http://www.arb.ca.gov/consprod/consprod.htm>>). From there, one can also join the email list serve where an email message will be sent whenever staff releases a survey, updates the webpage, or announces any other items of interest.

#### **4. Legislative Update – Mitch Gorsen, DPR**

Mitch Gorsen gave a legislative update for 2010 including topics such as, enacted legislation, controversial bills defeated or vetoed, methyl iodide, regulatory relief for business, administrative efficiencies, 2010 budget, and a 2011 legislative preview.

While there were many pesticide related bills introduced in 2010, only a few were enacted, including:

##### Assembly Bill 1736 (Ma, Chapter 238, Statutes of 2010)

This bill would extend until January 1, 2014, the sunset of the Structural Fumigation Enforcement Program (Program), providing enhanced support for enforcement of structural pesticide fumigation laws and regulations in the counties of Orange, Los Angeles, Santa Clara, and San Diego. The bill also clarifies the terms of appointment to ensure that the Structural Pest Control Board (SPCB) maintains a quorum.

##### Assembly Bill 1963 (Nava, Chapter 369, Statutes of 2010)

This bill would require clinical laboratories to send all tests performed to evaluate poisoning from cholinesterase-inhibiting pesticides to the Department of Pesticide Regulation (DPR) electronically. DPR would be required to manage the reporting system, maintain a database of the information, and share the information in an electronic format with the Office of Health Hazard Assessment (OEHHA) and the Department of Public Health (DPH) on an ongoing basis. By December 31, 2015, this bill would require a publicly available report be sent to the Legislature that evaluates the effectiveness of the laboratory-based reporting system, the overall utility of the medical supervision program relating to illness surveillance, and may include recommendations to extend, expand, or disband this mandated program.

#### **5. Air Monitoring Network – Randy Segawa, DPR**

DPR staff discussed the draft protocol for the air monitoring network. Several organizations and people submitted comments earlier either in writing or verbally, including ARB, DTSC, EPA, and environmental groups. Comments and suggestions include sampling all sites on the same randomly selected day each week. Several people suggested adding or moving the proposed monitoring sites in the selected communities based on pesticide use patterns or weather conditions. DPR intends to move the proposed site in Shafter due to the proximity to

an abandoned agricultural supply company and DTSC's cleanup plans. DPR's monitoring site will be at Shafter High School. No single site within a community would likely detect the highest concentrations for all pesticides; therefore, moving the site represents a tradeoff in proximity to high use areas of different pesticides. ARB agreed to conduct periodic audits as part of the quality control program. DPR will respond to the comments, finalize the protocol, and begin sampling in January 2011.

**6. Public Comment**

None received.

**7. Agenda Items for Next Meeting**

Syed Ali suggested Patti TenBrook speak about U.S. EPA's efforts on harmonization between the Office of Water and the Office of Pesticide Programs.

The next meeting will be held on Friday, January 21, 2011, in the Sierra Hearing Room on the second floor of the Cal/EPA building, located at 1001 I Street, Sacramento, California.

**8. Adjourn**